National Institute of Environmental Health Sciences

Winter air pollution and infant bronchiolitis in Paris

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Abstract:

Respiratory syncytial virus (RSV) is one of the most common respiratory pathogens in infants and young children. It is not known why some previously healthy infants, when in contact with RSV, develop bronchiolitis whereas others have only mild symptoms. Our study aimed to evaluate the possible association between emergency hospital visits for bronchiolitis and air pollution in the Paris region during four winter seasons. We included children under the age of 3 years who attended emergency room services for bronchiolitis (following standardized definition) during the period 1997-2001. Two series of data from 34 hospitals, the daily number of emergency hospital consultations (nEuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)50 857) and the daily number of hospitalizations (nEuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)16 588) for bronchiolitis, were analyzed using alternative statistical methods; these were the generalized additive model (GAM) and case-crossover models. After adjustments for public holidays, holidays and meteorological variables the case-crossover model showed that PM10, BS, SO2 and NO2 were positively associated with both consultations and hospitalizations. GAM models, adjusting for long-term trend, seasonality, holiday, public holiday, weekday and meteorological variables, gave similar results for SO2 and PM10. This study shows that air pollution may act as a trigger for the occurrence of acute severe bronchiolitis cases.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Meteorological Factors, Meteorological Factors, Precipitation, Temperature

Air Pollution: Particulate Matter, Other Air Pollution

Air Pollution (other): SO2; NO2; black smoke

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : France

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Other Respiratory Effect

Respiratory Condition (other) : bronchiolitis

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified